CASE REPORT

Treatment of ureterovaginal fistula using a Memokath stent

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SUMMARY

Ureterovaginal fistula (UVF) is a challenging problem for patients and doctors, especially in patients who have been treated by radiation for malignancy. UVF may occur in conjunction with surgeries involving the uterus. A success rate of 70–100% has been reported for fistula repair with the best results in non-radiated patients. Meanwhile, conservative treatment using ureteral stents in selected patients has resulted in reported success rates of 71%. We present the case of a 24-year-old woman with UVF due to surgery and radiotherapy for cervix cancer. The patient has been successfully treated with the insertion of a Memokath 051 stent (PNN Medical A/S, Denmark), which is a thermoexpandable, nickel-titanium alloy stent. The patient has been totally continent during a follow-up period of 3 years. The Memokath stent has been changed twice within this period due to dysfunction.

BACKGROUND

Ureterovaginal fistula (UVF) is an uncommon complication after surgery, but may be seen after obstetric and gynaecological procedures.¹ The risk of UVF is about 1% after radical surgery and radiotherapy for gynaecological malignancies.² Patients usually present with urinary incontinence per vagina and recurrent urinary tract infections (UTIs).³ The treatment of choice is usually ureteroneocystostomy with or without excision of the fistula. It is always challenging in patients previously treated by radiation due to malignancy.^{1 2 4}

For surgical repair of UVF with ureteroneocystostomy, with or without a Boari flap, a Psoas hitch has a success rate from 70% to 100%, while the rate with conservative treatment in selected patients by a double J catheter is reported as 71%.^{2 4 5}

The Memokath stent represents an alternative to the double J catheter. It is a thermoexpandable, nickel-titanium alloy stent used in the treatment of urinary tract obstructions, including urethral strictures or ureteric obstructions. The correct-sized Memokath stent is chosen after measurement of the stricture by retrograde or antegrade ureterography. Subsequently, a guide wire is passed across the stricture, which is then dilated with a balloon dilator or a graduated teflon dilator. The stent is inserted over the guide wire via an introducer. Finally, 60°C sterile water is inserted via the introducer. This softens the stent and makes it conform to the shape of the ureter and expands the flute at the end of the stent to anchor it in place. Although the replacement intervals vary between patients, the durability of the

Memokath stent is generally better than for double J stents and it may be left in situ for years.

CASE PRESENTATION

A 24-year-old woman, diagnosed with a squamous cell carcinoma of the cervix in 1998, was treated radically by conisation. In 2009, she presented with recurrence and metastasis to the retroperitoneum in the left pelvic region. The patient was treated primarily by surgical excision in the secondary hospital and was then referred to the tertiary centre for further oncological treatment, where she was treated with a combination of chemotherapy and external radiotherapy. Later, a positron emission tomography (PET) showed a residual tumour near the left iliac vessels. The patient underwent surgical excision of the tumour and interstitial radiation. Follow-ups revealed total remission and left-sided hydroureter and hydronephrosis. At this time, the patient was referred to the urological department and treated with a double J catheter. Subsequent renal scintigraphy showed normal function. Over the following 2 years, the double J catheter was changed several times due to dysfunction, pain and irritative problems, with gradual decline of the left kidney's partial function to 30% in scintigraphy.

In 2011, the patient presented with urinary incontinence per vagina. Cystography and retrograde pyelography revealed a UVF at the distal third of left ureter. Changing the double J catheter did not resolve the problem and the patient refused to undergo surgical ureter re-implantation due to her previous experience with surgical complications. Therefore, the double J catheter was changed to a Memokath 051 stent (PNN Medical A/S, Denmark; [figure 1](#)). This treatment completely resolved the vaginal incontinence immediately following surgery. By 1 October 2014, the Memokath stent had been changed twice due to occlusion. Renal function has remained unchanged.

INVESTIGATIONS

CT urography showed left-sided hydronephrosis and dilated ureter.

Perioperative cystoscopy, cystography and retrograde pyelography revealed the UVF.

TREATMENT

Conservative treatment of UVF using a Memokath 051 stent.

OUTCOME AND FOLLOW-UP

Clinical and renal scintigraphic control every 6 months.

CrossMark

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Figure 1 Kidney, ureter and bladder X-ray with an arrow indicating the Memokath stent.

DISCUSSION

UVF is a challenging problem for patients and doctors, especially in patients who have been treated by radiation for malignancy. As reported in the literature, the treatment is mostly surgery by ureteroneocystostomy with, if possible, excision of the fistula.² Surgical procedures in radiated patients might cause further problems due to non-healing and new fistula formation. Conservative treatment with a ureteral stent is reported in few cases.^{1 4} In our case, we had a successful outcome with the use of a Memokath 051 stent for the treatment of UVF. We believe that the mechanism of action is blocking of the ureteral lumen of the fistula by the stent, thus allowing the urine to pass through the stent into the bladder.

Patients presenting with incontinence after pelvic surgery, radiation or both should always be suspected of having a UVF. The diagnosis is based primarily on CT urography, however, this only confirms the diagnosis in 58% of patients.⁴ In our case, the diagnosis could not be confirmed by CT urography but was established by perioperative cystoscopy, cystography, retrograde

ureterography and a dye study. These diagnostic methods are also mentioned in the literature.⁶

The follow-up is not well described in the literature, perhaps due to the small number of patients reported. In our case, we have followed up with the patient every 6 months with renal scintigraphy and clinical assessment.

In conclusion, the conservative treatment of UVF with a Memokath stent can be considered as an alternative option. Otherwise, surgical reconstruction is mandatory after failure of conservative treatment.

Learning points

- ▶ Ureterovaginal fistula (UVF) is rare, but should always be suspected in patients treated by radiotherapy and presenting with incontinence.
- ▶ Pyelography (retrograde and antegrade) is a reliable method of diagnosis for UVF.
- ▶ Conservative treatment with a Memokath 051 stent can be considered as an alternative option for UVF.

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